



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of: Hans H. Kuhn et al.  
Serial Number: 09/281,089  
Filed: 03/30/99  
For: TEXTILE SURFACE COATINGS OF IRON  
OXIDE AND ALUMINUM OXIDE

*Handwritten:* #9  
8-2-01  
*Signature*

Group Art Unit: 1771  
Examiner: J. Guarriello

BRIEF ON APPEAL UNDER 37 CFR § 1.192

**RECEIVED**

JUL 26 2001

**TC 1700**

Box AF  
Commissioner of Patents  
Washington, DC 20231

Sir:

The following appeal brief is submitted pursuant to the Notice of Appeal filed concurrently herewith, from the Final Action dated May 22, 2001, rejecting claims 1-6.

REAL PARTY IN INTEREST

Milliken & Company, P.O. Box 1926, 920 Milliken Road, Spartanburg, South Carolina 29303 (Assignee).

07/25/2001 SSESHE1 00000012 040500 09281089

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RELATED APPEALS AND INTERFERENCES

No appeals or interferences are known of which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

### STATUS OF THE CLAIMS

Claims 1-6 are pending and have not been amended during prosecution. Appeal is taken from the final rejection of said Claims 1-6.

### STATUS OF THE AMENDMENTS

No amendments to the Claims were made subsequent to final rejection. The claims on appeal as they presently stand are appended hereto.

### SUMMARY OF THE INVENTION

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A textile substrate is provided which is coated with a film comprising iron (III) oxide hydroxide and aluminum oxide hydroxide. This film or coating is formed by contacting the textile substrate with an aqueous solution comprising ferrous or ferric salts and aluminum salts. The iron (II), iron (III), and aluminum ions are hydrolyzed and the iron (II) ions are also oxidized under controlled conditions. These hydrolyzed species then, it is believed, coprecipitate or copolymerize on the textile surface to form a smooth, coherent, substantially amorphous iron (III) oxide/aluminum oxide hydroxide film or coating on the surface of the substrate without forming an insoluble iron (III) or aluminum hydroxide precipitate in the solution. This is accomplished by controlling the reaction conditions such that the rates of adsorption onto the substrate surface of both iron (III) and aluminum oxide hydroxides are greater than the rates of formation of said same oxide hydroxide particles (see pages 4, line 17-page 6, line 5, for a concise explanation of this textile coating and procedure to apply such to a textile surface; see also, pages 8, line

14-page 9, line 7). The resultant coating is substantially amorphous with extremely limited crystalline formation (see page 14, line 22-page 15, line 7). The obtained substrate has very good color fastness (page 15, lines 8-19), antibacterial, and antiviral properties (page 15, line 20-page 16, line 6; pages 25 and 26).

### **ISSUE**

a) Whether the rejection of Claims 1-6 under 35 U.S.C. § 112, first and second paragraph, as not complying with the written description requirement and/or with being indefinite for failing to particularly point out and distinctly claim the subject which applicant regards as the invention, is proper.

b) Whether the rejection of Claims 1-6 under 35 U.S.C. § 103(a) as being unpatentable over Ishino et al. in view of Watanabe et al., is proper.

### **GROUPING OF CLAIMS**

Each claim stands separately from the others.

### **ARGUMENT**

a) With regard to the indefiniteness rejection of the pending claims, the primary problem cited by the Office is the use of the term "copolymer" with regards to the films of inorganic species now claimed. The Office has further stated that such a description is problematic because "applicant's claimed invention is to a 3-dimensional inorganic

crystal lattice not to a copolymer, as asserted, because no chains of monomer are present” (Advisory Action mailed on June 28, 2001). Clearly, the Office has misunderstood the invention as clearly described within the originally filed specification. It appears that such a misunderstanding has led to this incorrect position of the Office. Appellants describe their invention as an amorphous film throughout the specification (see Abstract, page 13, lines 6-14, page 14, line 22- page 15, line 6, as merely examples). Thus, the inventive film must not be crystalline in nature. Furthermore, the individual monomers are the iron oxide hydroxide and aluminum oxide hydroxide components. As Appellants have continually reminded the Office, because they have described the term “copolymer” fully within their specification, they are permitted to be their own lexicographer. As such, since the terms are used to define such films, there is no indefiniteness problem in this situation.

Additionally, contrary to the Office’s assertion that “polymeric” species are the only types of molecules which can be polymerized (and thus defined as copolymers), copolymers can be comprised of any molecules which exist as repeating units and are actually attached together. Appellant also provided definitions from Hackh’s Chemical Dictionary showing that inorganic-polymers do exist and are well known. Contrary to the Office’s continued position that such a term is repugnant to the usual meaning of a term, then, the utilization of the term “copolymer” for inorganic species is accepted within the scientific community. As such, there simply is no actual problem with indefiniteness or completeness with description to create a problem of understanding to the ordinarily skilled artisan or to question the breadth of subject matter now claimed

being in the Applicants' possession at the time this application was filed. For all of these reasons, it is thus respectfully submitted that the term "copolymer" within the pending claims is not indefinite. Reconsideration and withdrawal of these bases of rejection are thus earnestly solicited.

Furthermore, as it concerns the term "substantially goethite" in Claim 2, Appellants do not understand the basis of such a rejection as the limitation simply requires that most of the iron oxide component of the particular textile film is goethite. Control of certain reaction conditions is needed to produce such a specific iron oxide species, although as with any type of chemical reaction, the production of all of such an iron oxide is difficult to accomplish. The limitation of "all goethite" would be improper and nearly impossible to accomplish due to this reaction issue. Appellants have provided examples of such a specific textile film coating as in Claim 2 (the examples are produced through reaction in a medium exhibiting a pH between 2.5 and 4.5). As a result, such a term thus encompasses the production of as much goethite as possible in the clearest manner possible since other types of iron oxide hydroxide will be formed within the coprecipitate or copolymer. There is no indefiniteness problem as the ordinarily skilled artisan would understand the difficulty, if not impossibility, in producing all goethite as the iron oxide hydroxide component. As for the Office's assertion that "only a small part" of the coprecipitate or copolymer is goethite, such a statement is quite cryptic. Upon review of page 13 of the specification, the only discussion of "small amounts" of components refers to "other metal oxides" present on the textile surface which may modify the color of the textile itself. Such a disclosure does not limit the amount of

goethite at all and is the only cite located which concerns descriptive amounts of metal oxides. Further down the page, there is a discussion of the thickness of the coating on the textile substrate; however, even if this is considered "a small part", the fact remains that Applicant has produced and claimed such a coating that comprises an iron oxide hydroxide component that is "substantially goethite" in composition. The Office has yet to fully discuss such a basis of rejection in view of this inappropriate citation of the Appellants' own specification in this regard which makes the finality of the pending rejection suspect. Reversal of this basis of rejection is respectfully requested.

The remaining issue within this indefiniteness rejection concerns Claim 6 and the term "water filtration article". Such a claim is directed to a water filtration article which comprises a textile as defined in Claim 1. Thus, the claim is more limited than just a textile since it requires that the textile be a component within the water filtration article itself. Appellant failed and fails to understand the lack of understanding on behalf of the Office with regard to such a claim and has requested further elaboration on the basis of rejection, including specific case law on the subject. None has been provided to date by the Office. As it is, it is Appellant's position that such a claim is more limiting than the independent Claim 1 and thus is proper in form. Reversal of such an improper rejection is thus earnestly solicited.

b) Appellants believe the rejection of the pending claims under 35 USC § 103(a) over Ishino et al. in view of Watanabe et al. is untenable for a number of reasons. Initially, Ishino et al. are directed to the production of a ferrite textile composite comprised of a ferrite powder adhered to the surface of a textile with a binder. There is no production of any precipitate or polymer of iron oxide hydroxides (not to mention coprecipitates or copolymers with aluminum oxide hydroxides) anywhere within this document. Ishino et al. teach a crystalline powder film, not an amorphous coprecipitate and/or copolymer film as now claimed. Appellants have clearly shown, *ad nauseum* throughout their originally filed specification, specific reaction conditions must be followed and certain reactants must be introduced in order to produce such a coprecipitate and/or copolymer. Ishino et al. simply teach, again, a bound ferrite (crystalline) powder to a textile, period. Additionally, Ishino et al. fail to make any suggestion or provide any motivation for the introduction of aluminum salts, let alone aluminum components that eventually react with iron oxides to form the presently claimed coprecipitate and/or copolymer amorphous films of iron oxide hydroxide and aluminum oxide hydroxide on textile surfaces.

Watanabe et al. fails to remedy this problem as they do not teach or suggest any production of any precipitate or polymer of iron oxide hydroxides (not to mention coprecipitates or copolymers with aluminum oxide hydroxides). Patentees are solely concerned with improving pigments for utilization within cosmetics. Initially, then, nowhere within either reference or within the combination (if such a combination were

somehow considered proper) of the two references is the "invention as a whole" as claimed taught or suggested, as is required of such a combination of references for a proper obviousness rejection. Gillette Company v. S.C. Johnson & Son, Inc., 919 F.2d 720, 724, 16 USPQ2d 1923, 1927 (Fed. Cir. 1990); Jones v. Hardy, 727 F.2d 1524, 1529, 220 USPQ 221, 226 (Fed. Cir. 1984).

In addition, as alluded to above, due to the disparity of art between these two references, the combination of Watanabe et al. with Ishino et al. is simply improper and thus is not a proper basis of rejection over the pending claims since the teachings of references can be combined only if there is some suggestion or incentive to do so, ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). Where is the motivation that one of ordinary skill in the ferrite powder-coated textile art would have reviewed the cosmetic pigment art for a proper additive within a ferrite powder film? Clearly, such a person would not have performed such a review.

Furthermore, what teaching or suggestion in the applied prior art would there have been for one of ordinary skill in the pertinent art to take the ferrite powder-coated films of Ishino et al. and modify it by introducing a cosmetic pigment additive from Watanabe et al.? Appellants fail to see any such motivation.

Additionally, the aluminum salt of Watanabe et al. is not even a required component of patentees' formulations; the citation of such a salt is in a laundry list of potential additives and thus the presence of such a component is not critical for any distinct purpose. Again, how would one of ordinary skill in the pertinent art be inclined to introduce such an optional salt from a cosmetic pigment formulation within Ishino et

al.'s ferrite powder-coated textile composite? Again, such a combination is improper in Appellants' view.

Again, there simply is no motivation to introduce an optional aluminum salt from Watanabe et al.'s solid substrate pigment production methods into Ishino et al.'s ferrite powder-containing electrically conductive textile composite, let alone for the purpose of somehow producing the same amorphous coprecipitate and/or copolymer as now claimed. Watanabe et al.'s salts must be mixed in with other oxides or hydroxides and with the substrate for pigment deposition (glass, etc.). Thus, even if any motivation existed to introduce the aluminum salts of Watanabe et al. within Ishino et al., such a solid substrate pigment as in Watanabe et al. could only be introduced within Ishino et al.'s teachings by applying that pigment to the ferrite textile composite surface. There would be no way that the crystalline ferrite powder would then copolymerize with the aluminum salt (not to mention the required aluminum oxide hydroxide of the present claims) to form the currently claimed coprecipitate or copolymer-coated textile therewith.

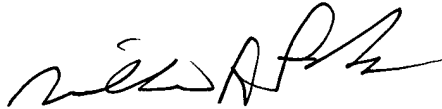
Therefore, in this respect, again there would be no way this combination could teach Appellants' "invention as a whole" as is required of a proper *prima facie* obviousness rejection. Gillette Company, 919 F.2d at 724, 16 USPQ2d at 1927; Jones, 727 F.2d at 1529, 220 USPQ at 226.

Clearly, then, in relation to all of the arguments presented above, the only manner in which the Office actually proffers this basis of rejection is the improper hindsight reconstruction of Appellants' own teachings. It is understood by Appellants that some reconstruction is needed to provide obviousness rejections by the Office; however, the

lengths to which the Office has gone to provide this basis of rejection is too far afield to be considered anything but improper in this instance. Reversal of the rejections in this appeal is hereby requested.

Respectfully submitted,

July 19, 2001



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**CERTIFICATE OF MAILING**

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to The Commissioner of Patents, Washington, DC 20231, on July 19, 2001, along with a postcard receipt.



William S. Parks, Attorney for Appellants

**APPENDIX***Claims on Appeal*

1. A textile coated with a film comprising a coprecipitate or copolymer of iron oxide hydroxide and aluminum oxide hydroxide.
2. The textile of Claim 1 wherein the iron oxide hydroxide is substantially goethite.
3. The textile of Claim 2 wherein the coating comprises goethite and aluminum oxide hydroxide in a range of ratios by weight of from 30:1 to 1:1.
4. The textile of Claim 3 wherein the coating comprises iron (III) oxide hydroxide and aluminum oxide hydroxide in a range of ratios by weight of from 20:1 to 2:1.
5. The textile of Claim 4 wherein the coating comprises iron (III) oxide hydroxide and aluminum oxide hydroxide in a ratio by weight of 20:1.
6. A water filtration article comprising the textile of Claim 1.